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Scholasticism an Intellectual Basis and Unifying Principle of Modern Science

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SCHOLASTICISM AN INTELLECTUAL BASIS

AND

UNIFYING PRINCIPLE OF MODERN SCIENCE.

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SCHOLASTICISM AN INTELLECTUAL AND UNIFYING PRINCIPLE OF MODERN SCIENCE

Hail, holy light, offspring of heaven born!.
Or of the Eternal, co-eternal beam,
May I express thee unblamed? Since God is Light
Dwelt from eternity; dwelt then in Thee
Bright Effluence of bright Essence increate!
Or hear'st thou rather, pure etheral Stream
Whose fountain who shall tell? Before the Sun,
Before the heavens, Thou wert, and at the voice
Of God, as with a mantle did invest
The rising world of waters dark and deep,
Won from the void and formless infinite.

Paradise Lost--Book III.V.1-12.

Amid the almost uninterrupted disintegration of systems during the last three centureis, the philosophy of St. Thomas has alone been able to stand the shock of criticism; it alone has proved sufficiently solid and comprehensive to serve as an intellectual basis and unifying principle for all the new facts and phenomena brought to light by modern science.

"Scholasticism and the Schoolmen have often been reproached for their ignorance of science. In considering this criticism it must be remembered that there are extensive fields in philosophy in which excellent work can be done without any technical knowledge of the natural science." (1)

"Scholastic philosophy is imagined to be the barrier that stands in the way of progress toward 'life'. It is presumed to be a philosophy of the static; a sort of card-index system of thoight, in which everything is rigorously catalogued, and from which the spontaneous is rigorously excluded. It is said to be the philosophy of the inert and the lifeless, and the constantly recurring objection to it is that, 'it is characterized by a great incapacity for life."

Contemporary thought insists on the application of science to philosophy. The dominating hypothesis of thse latter years is that the evolution, which manifsts life in gradual unfolding, from its lowest even to its highest manifestations. Lamark, Darwin, Wallace and their successors have emphazized the evolutions of life in biology . Tyndall, Huxley, Spencer, James, Dr. Schiller M. LeRoy, M. Bergson,, Professor Perry, Dr. Shann and a host of others have done the same for philosophy. (2)

(1) Miller's History of Philosophy. P. 198

(2) F.J. Sheen's God and Intelligence. P. 76

"Science is as yet the go-cart. It cannot explain the free action of man, much less these mysterious psychic phenomena which (in spite of the opposition of science) have of recent years come more and more into prominence. One thing is certain: human minds provide the centers of action, open windows for God's light and influence." (1)

"Men and their systems have striven from time immortal to give a consistent explanation of thecause of the universe and existenct of matter. The Greeks, being extraordinarily close observersof Nature, and the eternal changes going on over 2,300 years ago through a series of great thinkers, Leucippus, Democritus, and Epicurus traced the perpetual change, to the motions of tiny atoms, of which matter is built. Their theory is that the universe is the result of the frotuitous concourse, or chance combinations of atoms." (2)

Mayer in his Elements of Scholastic Philosophy states, "The Atomist's Theory fails to account for the atoms themselves, or the wonderful order and harmony manifested in the universe. It does no explain the constance, fixity, stability, and permanence of the cosmic order: nay, bu denying purposive finality and intelligent design, and by assuming that mere chance governs the universe it substitutes for the true causeof permanent order and harmony that which is of its very nature opposed to harmony and permanent order; for chance is the priciple of nothing of inconstancy of disorder."

(1) Windle's Church and Science Page 138.

(2) Marten's Triumphs and Wonders of Modern Chemistry Page 11.

However, let us view modern tendencies in Astronomy, Geology Physics, Chemistry and Psychology and see how Scholastic Philosophy is ever modern.

La Place in his Exposition of the System of the World, States "that in the beginning primitive matter was a nebula mass,in a state of chaos, the center of which occupied the position now filled by our sun. This nebula was in a condition of incandescence also and was, therefore, smitting light. It had a rotary movement and was whirling around at rapid rate on its own axis. This theory postulates, but does not account for , the nebula,its incandescence, and its motion."

A second explanation of the cause of the universe has been put forth, which is clled the Meteoric or Planetsimal Theory. According to it the nebula consisted not of any incandescent gas, but aa huge collection of solid meteorites, which whirling around came into constant collision with one another, and thus developed heat and incandescence.

Abbe Moreaux in his Origine et Formation des Mondes, published in 1922, in Paris, believed that our planetary system might be the result of the evolution of a small spiral nebula, that began with a current of black meteoric matter. (1)

.. Astronomy

Astronomy goes even further for, Vermont in his Comptes rendus de L'Academie des Sciences, Jabuary 5, 1920, gives an account of an attempt to estimate the time necessary for the transformation of a nebula into a sun. It states that the duration is dependent upon the value of the of the primitive attracting mass, which we may consider equal to that of the earth , equal to a gram, to a molecule of hydrogen, or to an electron.

(1) Guibert and Bast Whence and How the Universe

Supposing that the phenomena took place on a scale found in our laboratories! Calculation shows that an atom would have been enough to form a sun in less than 400,000,000 years.

A theory which today seems to secure more support thatn any of the others that have been put forth by Jeans. He says,"That we are to think of a great Star making its way across spce, at the time when our sun immensely larger than now by the bulk of the planets all taken together, was in a nebula or gaseous condition. The passage od this star with gravitational influence caused the state of affairs, which is exhibited by our sustem today. (2)

Having Viewed one branch of Science. we see how it is constantly striving after a better and closer knowledge of the planet on which we live, and of the universe, in the vastness of which, that planet is lost.

Modern Geology tries to account for the earth. In its history we can distinguish a stellar phase, a planetary phase, and a geological phase. The stellar phase began with the solar nebula, and ended when it ceased to be incandescent. Astronomers say "that millions would have been suffucient for the solidification of all the matter and the disappearance of incandescence?. It is in the course of this first phase that the earth has given birth to its only satellite, the moon. This soon became extinct and has long since cooled off. It is completely condensed, and has only a motion or revolution around the earth.

(2) Windle 's Church and Science. Page 110.

The planetary phase began with the disappearance of incand escence and the geological phenomena, the perod of cooling intervened Around one thousand to eight hundred degrees a solid crust forms, particularly from scoriae silicates, carbonates and metalic oxides. This crust undergoes numerous changes in consequence of the variation in density, and the internal heat of the still molten materials, which fuses elements of the crusts.

Under the action of continued cooling the earth's shell, formed for the most part metals, contracts. To addto the shell, the crust completely solidified, must be split and dislocated. This is the beginning of organic and volcanic phenomena.

The geological period could have begun with the action ofexterna dynamic agents with the condensation of water vapors: which latr on played an important role in the shape of the terrestrial surface. As long as the earth was at a temperature as high as three hundred seventy degrees, the water could not condense, as this is the critical temperature for water. When the temperature fell below three hundred and seventy degrees a third of the aqueous vapor condensed and raised the pressure from two hundred kilograms to three hundred. This would then represent three thousand meter heads of water, is styled the critical deluge. The remaining two-thirds of aqueous vapor condensed between three hundred sixty nine and one hundred degrees giving a two thousand meter head of water. This is the normal deluge.

It is difficult to know whether in the diluvian periodthe terrestrial relief was ver accentuated. This would appear probable since the terrestrial crust even at this time would have had to split.

It is easy to see what amount of hydration and erosion these volumes of hot water, falling in veritable torrents upon a scarcely solidifie and still seething mass could produce. The solvent action of the water added to a mechanical action should have altered the primitive terresstial crust, from the standpoin of physics in general and crystallization in particular. Its chemical action on the material substance capable of hydration, should have modified them profoundly.

Geopgaphy gives us an idea of the appearance of our globe the total area of which is 510,000,000 square kilometers, three fourths of which is covered by oceans, which is 135,000,000 and one fourth of ir or 135,000,000 square kilometers completes the whole universe.

With these facts brought to light by modern astromomers and geologists we discover marvels hitherto unsuspected and evidences of perfect harmony---striking proof of the action of an Ordaining Providence. For there is here not merely a question of combining the movements of three bodies under reciprocal influence, but of an infinity of bodies, of systems, of forms of energy, so as to make them pass from the primitive nebula to the present world, where everything is found to be marvelously regulated. The transcendency of this Ordaining Intelligence imposes itself with a certainty that no sophism can obscure. It is as evident to the most untrained as to the most enlightened intelligences.

Science deals with ascertained facts. It deals with realities. Yet it cannot answer the greater and ultimate "Whence "and How". It must needs rely on a philosophy based upon truth. Since science is as-

ascertained truths

certained truths, it cannot be at variance with truth.

How does scholasticism, the philosophy of truth account for the fact, the universe? It maintains:-"The material universe was created by God" From non-existence the universe was made to exist by an an act of the Divine Will. In virtue of the volitional act of God the universe passed from the state of pure possibility to the state of actuality.

Argument:- The material universe is either self- existent and unproduced, or it is produced and dependent upon some being distinct from itself.

It is not self existent and unproduced, for and unproduced, self existent being is essentially one, infinitely perfect, absolutely simple, immutable and independent. The material universe in its totality as well as in its parts, is just the reverse of all this.

It must be produced, and dependent on some outside being.

Since it is produced, it must have been produced eitherfr from some pre-existing subject or no pre-existing subject. If from a pre-existing subject, this pre-existing subject, from which it was produced must be either, the self existent Substance of God, or some dependent and contigent substance.

It cannot be self existent Substance of God, Because in that case the world would be part of God, and all particles of the Divine Substance would contain things of the world; but this is utterly impossible, for the simple reason, that the Divine Substance is absolutely simple and indivisible.

Nor can the universe have been produced from some dependent and contingent substance, for them the questions would return - upon what does this substance depend? When and how did it come to be?

Therefore since the material universe is not unproduced and self existent, nor produced from any pre-existing subject; it must have been produced without the use of pre-existing substance or material.

Now if the material was produced from nothing, as reason tells us, it must have been; it can only be in virtue of the Creative Act of God. For God alone can actualize mere possibility. Omnipotence alone, could have done this, for it is clear that the more remote the potency the greater must be the power required to give it actuality. But of all potencies, the mere capacity for existence is most remote. Hence it can be actualized by no finite power because finite power can only actualize possibilities of already existing things. "The material universe was created by God".

Meyer's Scholastic Cosmology. --- Page 18.

Physics, is the next branch of science we shall review. Since energy is the immediate cause of all the material phenomena in the evolution of the world we shall now consider it and its transformations. Energy is the ability to do work. According to the law of the conservation of energy, the quantity present in the universe remains constant. However, Carnot has formulated a mutual complement to this, in his principle of the Dissipation of Energy. He states that energy is constantly being dissipated, that is being transformed into the lower forms of energy, with decreasing reversibility and tending to a state of thermic equilibrium. It is this kind of Energy which interests us here, which has caused the evolution of the celestial bodies, including our own solar system, which comprises all mineral, vegetable, animal and human activity.

Carnot's principle is explained by Guibert and Bast in Whence and How the Universe, Page 159 follows: The world evolves, it procedes towards

towards a stable, irreversible thermal equilibrium.

This state, more or less remote, according to the bodies or the species of bodies, and according to the available energy will inevitably and successively be attained by all the elements animate and inaniamte creatures, liquids and gases, planets, star groups, nebulae. We might consider one by one the consequences of the disappearance of some particular form of energy, nad its total transformation into unused and unavailable radiant heat. First we shall see the disappearance of all life on the face of the earth, when the solar radiations(chemical, calorific and luminous) will no longer be sufficient to support it. Already at 0 C. plant life is considerably reduced, and with the disappearance of plants, that of animals will inevitably follow. Then some degrees below zero all vegetation disappears and with it all life. In vain will man try to replace the solar energy by that of coal, petroleum or hydro- electric power. The latter no longer exists at 0 and the other two are by no means inexhaustible, supposingthat man has already squandered them long before. All circulation of water will cease at 0 C. and -3 or -4 C. the oceans will befrozen over From this time foward, the frozen earth will be butan inert, uninhabitable body.

In consequence of the scientific truth that the world isnot infinite and its various forms of energy, with their transformations, not indefinitely possible, we are logically brought to this, the world has had a beginning, it ought to have an end.

The Scholastics in the Middle Ages discussed whether an eternal world was possible, and Saint Thomas maintained that it was not. Eternity as applied to a world was not understood to be the same as the Eternity of God. God's Eternity has no succession, where as the world duration is clearly one of succession.

The present state of the material world, in so far as the conditions necessary for life, are concerned, will eventually come to an end.

Argument: The available energy in thw world is continually decreasing. But such decrease means the ultimate cessation of conditions requisite for life. Therefore the conditions requisite for life will eventually come to an end.

The major: A certain amount of the energy at work is always converted into heat. Now heat is indeed a form of energy, but it is not available unless it can flow into a body of lower temperature. The result of this operation is that all the bodies in the universe will gradually approach the same temperature. Hence the amount of available energy is constantly approaching zero.

The minor: We know that organisms cannot subsist except under conditions where considerable energy is available, in fact they are able to subsist on earth only by virtue of energy, which has been and is being constantly diffused in space by the heavenly bodies. Plant life is possible only by the utilization of energy radiated from the sun. Plants in turn supply food and oxygen for the anim

oxygen for the animal kingdom. Thus the whole of organic life is dependent on a constant and enormous flow of energy.

The material world will eventually come to an end. (J. A. McWilliams' S. J. Cosmology - Page 42.)

"We now peruse chemistry, a science revolutionized by startling discoveries within the last few years. The atoms have been shown to be of immense complexity, the seat of vast forces and terrific motions, the very existance of which was scarce dreamt of until the advent of radium. A series of magnificent researches has recently shown us that these atoms, far from being the changeless and eternal foundation stones of the universe that they were once thought to be, are themselves crumbling away." (From Martins' "Introduction to Triumphs and Wonders of Modern Chemistry.

"All bodies perceptible by the senses are aggregations of individual atoms or of molecules. The weight of an atom is a property that is really specific, in as much as each simple body has its own invariable atomic weight; in virtue of which it occupies a definite place in the graduated scale that stretches from hydrogen, the lightest body, to uranium, the heaviest.

According to Scholasticism, this diversity between

atomic masses is a natural consequence of each element having a specific nature. Matter and form are necessarily related to one another as potentiality and actuality.

In spite of their inequality all atomic masses equally resist division by ordinary physical forces. What does Scholastic Cosmology assign as the cause of this fact? If we consider mathematical quantity, or quantity in the abstract, there is no reason why bodies should not be capable of ever further divisions, and finally all reduced to the same. But over and above mere quantity, there is the substance with its special exigences; indeed every being has an inherent tendency to preserve the integrity of its mass, and in consequence to offer a resistance of its own, to any forces that would dissolve it. Hence it is natural for every simple body to have its own special quantity of matter, that defies further division.

Chemical Affinity is one of the most striking manifestations of the specific difference between inorganic bodies. It appears at once as (a) an aptitude of heterogeneous bodies to combine, (b) as an elective tendency, (c) as a force or chemical energy.

Affinity normally exists only between heterogeneous bodies. Elements, which enter into combination have to be altered to each other.

According to Scholasticism every compound is a being essentially one and specifically distinct from its component elements.

Another principle of Thomistic Theory is that every being in the universe has been created for a purpose, there is nothing, which does not co-operate in realizing and maintaining the order of the world, that does not reflect the plan of the Divine Mind. With this aim in view the Creator has endowed every being with natural tendencies, which direct their activities and secure the stability of the laws of the universe. Nature says St. Thomas "Is the principle of the Divine Art impressed upon things, in virtue of which, they move towards determinate ends." This he calls Immanent Finality.

When bodies act chemically so as to form new compounds, they exercise their energies, under the impulse of this intrinsic tendency. Thus chemical energies find the norm of their spontaneous activity in the body itself. Intensity is proportionate to mutual tendency of reacting masses. Each body having its own specific nature and energies, it is not unnatural that the discharge of calorific, electric and luminous forces, should vary in different substances.

Valence or atomicity is atomic weight plus Affinity.

left to caprices of chance and varied circumstances, in which the activity of matter finds its exercise.

Has Scholasticism any explanation to offer for this fact? According to it Valence must have some constancy, since it depends on the nature of a body. Chemical compound is the primary end towards which simple bodies tend." Mercier's

Introduction to Scholastic Philosophy

(P - 107 - 110.)

We now turn our attention to Modern Psychology and its principles. The first question that confronts us is, How did life begin on the earth? It it is true, as scientists hold, that at a remote period, no living thing inhabited the face of the globe, How, and by what forces were the originally inert molecules, subsequently endowed with vital power? We shall not, however, concern ourselves here with the problem of determining whether all living forms, have been derived from only one primitive form, or are descended from many forms. The only question under consideration is; In what manner did the first living protoplasm originate?

The Bible gives us one solution. It is that God created life. Though this answer is clear, it does not appear precise enough, for all interpreters and especially

modern scientists. These modernists think that Science is dishonored, by having recourse to a Creator. It is no disgrace for Science to recognize that the world is not self-explanatory.

The Literary Digest quoted the following from Paul Becquerel's Book "The Problem of the Origin of Life, July 11, 1925.

"If we wish to explain the origin of life on the earth's surface, without recourse either to spontaneous generation or to supernatural creation, there is only one likely solution. It is that the earth, like an ordinary bouillon of cultures has been sowed with germs from another inhabited planet. Have meteors, cosmic dust, the propulsive force of stellar radiation, or universal attraction brought such germs hither? My conclusion is very clear. Terrestrial life did not come from another world. As my experiments on the microbicidal action of ultra violet rays at low temperatures have shown, fo germ can traverse the interstellar void, without being killed by the sun's ultra violet radiation.

But there are forces yet more dangerous in the high atmosphere! They are the cathodic rays, which striking upon the fine crystallized dust of frozen nitrogen, produce the magnificent boreal auroras! Not only are these

rays fatal to germs, but after absorption they produce the X-rays, whose redoubtable powers we know only too well.

These X-rays would reach the interstellar germs adhering to the nitrogen crystals, and even those lurking in the interior of cosmic dust particles where they might have penetrated, if these were porous: and there the germs would be inevitably annihilated.

As for transportation by meteorites, Pasteur, himself demonstrated that these are sterile. In the present state of Science, we must then be content to concentrate our researches upon the earth. To regard the origin of life as having taken place elsewhere, is to elude the problem."

Two great theories of the origin of life have in the past been more or less accepted. First, the traditional theory, that the human species, as well as all others were each and all immediately created by God. Secondly the so-called Evolutionary Theory, which tries to determine succession of various kinds of plants and animals on earth. This Theory tries to show that in the course of ages they gradually evolved from their beginnings by natural development and survival of the fittest.

The first of these theories, favored by the Bible, and Fathers and Doctors of the Church held undisputed sway down

to the middle of the nineteenth century. Then after thee publication of Darwin's Origin of Species in 1859, certain theorists began to put forward the second theory in the name of Evolution.

Darwin's Theory necessitates the belief that man and the apes have sprung from the same common stock. Haeckl, Hume and H. G. Wells firmly believe this theory also.

Darwinianism, as such, however, has long been proved a gratuitous and absurd hypothesis, because Darwin begins with uncaused matter.

Professor Osborne, and others, after having unearthed bones of fossil remains, put together what he called the Pilt down Man. This he said was the proof of Evolution. He exhibited it in the American University of Natural History, in New York in 1921. The Pilt down Man's jaw and tooth, after careful comparison, were declared to be the jaw and tooth of a fossil chimpanzee.

The Neanderthal Man in Germany, Trimal Spe Man in Java, and Krapina Man in Croatia have been put together and given to the world as the "Missing Link" of Evolution, but to no avail.

However we will not say that there never has been an evolution. No biologist of repute, now living questions the fact of organic evolution.

Evolution, says Guibert, "Can be the history of the world only on condition it is a process of creation, in the hands of a Sovereign Intelligence."

Dewey, James and many other modern psychologists claim that man is nothing more than matter, thus casting aside the soul and belief in a Hereafter.

Scholastic Psychology maintains that: Man is composed of matter and form, the form or soul being subsistent, substantial, spiritual and immortal, hence directly created by God.

Argument - Man is capable of knowing the nature and essences of corporeal things, he can reflect on his own thoughts. He can reason out whether to perform or refrain from certain acts, he can will to do or not to do any act. The former faculty is Man's Intellect, the latter his Free Will.

The Major - Man exercises, his Intellect and Free Will, both of which are spiritual faculties.

The Minor - These faculties cannot be the product of matter, for an effect is never greater than its cause, neither can a being give that which it has not. Since man exercises these faculties he must be composed of another part other than matter.

Therefore they are the products of a spiritual faculty in man, the soul.

From the spirituality of the soul, we can conclude its indestructibility and immortality. The soul cannot be destroyed per accidens; that is by reason of the destruction of an other thing, with which the soul is linked up. Accidents and material forms perish, when the whole being is destroyed. The human soul is a subsistent spiritual being and is therefore incorruptible.

The soul cannot perish per se, that is by reason of its own nature. It is a substantial, spiritual form. That which per se belongs to a form is inseparable from it. Therefore it is impossible for a substantial, spiritual form to cease to exist. - Grabmann's Thomas Aquinas. Page - 127.

If the soul is an intelligent, spiritual and free being; its cause must also be an Intelligent Spiritual, and Free Being, God. Hence man is composed of matter and form; the form or soul is subsistent spiritual and immortal: therefore directly created by God.

Scholasticism is the key to the problems of Science, old and new, for it reveals to us the distinction between the Dead Sea apples and the tree of the fruit of life and thus leads us into the very garden of pleasure, for it leads us to God Himself.

In Browning's, "A Soul's Tragedy," Act I, these lines are a clear expression of what rationally grounded Phil-

osophy and Science should be:

I trust in nature for the stable laws
Of beauty and utility. Spring shall plant
And Autumn garner to the end of time.
I trust in God - the right shall be the right
And other than the wrong, while He endures;
I trust in my own soul, that can perceive
The outward and the inward, Nature's good
And God's.
